

WHAT IS CLAIMED IS:

1. An optical disk high-speed replaying/recording apparatus which reads, from a first optical disk having recorded thereon digital data in first units to be reproduced at a first replay speed as being a normal replay speed, the digital data in second units smaller than the first units at a second replay speed higher than the first replay speed, writes the read second units of digital data in a writable second optical disk, and then records the first units in the second optical disk, the apparatus comprising:

first read data quality determining means for determining a quality of the read second units of digital data; and

15 first re-reading means for re-reading, upon determination that the quality of the second units of digital data is low, the first units of digital data in the second units at a third replay speed obtained by subtracting a first predetermined speed from the second replay speed.

20

2. The optical disk high-speed replaying/recording apparatus according to claim 1, further comprising:

second read data quality determining means for determining a quality of the re-read second units of digital data;

25 and

second re-reading means for re-reading, upon determination that the quality of the re-read second units of digital data is low, the first units of digital data in the second units at a fourth reply speed obtained by subtracting a second 5 predetermined speed from the third replay speed.

3. The optical disk high-speed replaying/recording apparatus according to claim 2, wherein

the first predetermined speed is equal to the second 10 predetermined speed.

4. The optical disk high-speed replaying/recording apparatus according to claim 1, wherein

the first predetermined speed has an arbitrary value 15 so that the third replay speed is higher than the first replay speed.

5. The optical disk high-speed replaying/recording apparatus according to claim 2, wherein

20 the second predetermined speed has an arbitrary value so that the forth replay speed is higher than the first replay speed.

6. The optical disk high-speed replaying/recording 25 apparatus according to claim 1, wherein

the second units are any of tracks, sectors, and data blocks.

7. The optical disk high-speed replaying/recording
5 apparatus according to claim 1, wherein

upon writing of the first units of digital data in the second optical disk, management information of the first units of digital data is written in a record data management information storage area of the second optical disk.

10

8. The optical disk high-speed replaying/recording apparatus according to claim 7, wherein

the second optical disk is an MD-R disk, the record data management information storage area is an UTOC area, and the
15 management information is UTOC information.

9. The optical disk high-speed replaying/recording apparatus according to claim 1, wherein

the first optical disk is a CD-R disk.

20

10. An optical disk high-speed replaying/recording apparatus which reads data from a first optical disk having recorded thereon first digital data to be reproduced at a first replay speed as being a normal replay speed, at a second replay speed higher
25 than the first replay speed, reproduces the read data as second

digital data, and records the reproduced second digital data in the second writable optical disk, the apparatus comprising:

maximum replay speed detecting means for detecting, based on a piece of the second digital data reproduced from a 5 predetermined portion of a recording area of the first optical disk, a maximum replay speed applicable to an entire recording area of the first optical disk;

optical disk replaying means for reproducing the second digital data from the first optical disk at the maximum replay 10 speed; and

optical disk recording means for recording the second digital data on the second optical disk.

11. The optical disk high-speed replaying/recording 15 apparatus according to claim 10, wherein

the predetermined portion is a portion which is typically defined based on a type of the first optical disk and in which reproduction defects tend to occur most during replaying of the first optical disk at the second replay speed.

20

12. The optical disk high-speed replaying/recording apparatus according to claim 11, wherein

the predetermined portion is a portion located at a inner-most-rim side of the first optical disk under CLV control.

25

13. The optical disk high-speed replaying/recording apparatus according to claim 12, wherein

the predetermined portion is smaller than a recording area portion except the predetermined portion.

5

14. The optical disk high-speed replaying/recording apparatus according to claim 13, wherein

the first optical disk is a CD, a total recordable time of the entire recording area is 74 minutes, a total recordable time of the predetermined portion is 5 minutes.

10 15. The optical disk high-speed replaying/recording apparatus according to claim 11, wherein

the predetermined portion is a portion located at an inner-rim side of the first optical disk under ZCLV control.

16. The optical disk high-speed replaying/recording apparatus according to claim 13, wherein

the predetermined portion is smaller than a first portion located on the recording area closer to an inner-rim side of the first optical disk than the predetermined portion is located, and is smaller than a second portion located on the recording area closer to an outer-rim side than the predetermined portion is located.

25

17. The optical disk high-speed replaying/recording apparatus according to claim 16, wherein

the predetermined portion is smaller than the first portion, and the first portion is smaller than the second portion.

5

18. The optical disk high-speed replaying/recording apparatus according to claim 11, wherein

the predetermined portion is a portion located at a most outer-rim side of the first optical disk under ZCAV control.

10

19. The optical disk high-speed replaying/recording apparatus according to claim 18, wherein

the predetermined portion is smaller than a third portion located on the recording area closer to an outer-rim side of the first optical disk than the predetermined portion is located, and is smaller than a fourth portion located on the recording area closer to an inner-rim side than the predetermined portion is located.

20

20. The optical disk high-speed replaying/recording apparatus according to claim 19 wherein

the predetermined portion is smaller than the third portion, and the third portion is smaller than the fourth portion.

25

21. The optical disk high-speed replaying/recording

apparatus according to claim 10, wherein

the maximum replay speed detecting means includes:

high-speed reproducing means for reproducing the
second digital data from the predetermined portion at the second
5 replay speed;

reproduced digital data quality determining means
for determining a quality of the second digital data reproduced
by the high-speed reproducing means; and

high-speed replaying control means for determining,
10 upon determination that the quality of the reproduced second
digital data is low, a third replay speed by subtracting a
predetermined speed from the second replay speed until another
determination is made that the quality is high, and causing the
high-speed reproducing means to reproduce the second digital data
15 from the predetermined portion at the third replay speed for output
to the reproduced digital data quality determining means.

22. The optical disk high-speed replaying/recording
apparatus according to claim 21, wherein

20 the predetermined speed has a value smaller than a value
obtained by subtracting the first replay speed from the second
replay speed.

25 23. The optical disk high-speed replaying/recording
apparatus according to claim 22, wherein

the maximum replay speed detecting means further includes maximum speed detecting means for determining, as the maximum replay speed, a third speed which is used upon determination that the quality of the second digital data is high.